

LISTING OF THE CLAIMS

The following listing of claims is included for convenience only. No new amendments are made by this listing.

1. (Original) A method of growing a nitride-based film, the method comprising:
applying a first precursor flux for a first element using a first pulse, wherein the first pulse has a first duration and wherein the first element comprises nitrogen; and
applying a second precursor flux for a second element using a second pulse, wherein the second pulse has a second duration, and wherein the second duration is not equal to the first duration.
2. (Original) The method of claim 1, further comprising applying a third precursor flux for a third element using a third pulse, wherein the third pulse has a third duration, and wherein the third duration is not equal to the first duration.
3. (Original) The method of claim 2, further comprising applying a fourth precursor flux for a fourth element using a fourth pulse, wherein the fourth pulse has the first duration.
4. (Original) The method of claim 3, wherein the nitrogen precursor flux comprises NH_3 , the second precursor flux comprises TMG, the third precursor flux comprises TMI, and the fourth precursor flux comprises TMA.

5. (Original) The method of claim 1, wherein at least a portion of the first pulse is applied at the same time that at least a portion of the second pulse is applied.

6. (Original) The method of claim 1, wherein at least one of the first pulse and the second pulse has a non-rectangular waveform.

7. (Original) The method of claim 1, further comprising illuminating the nitride-based film with ultraviolet radiation.

8. (Original) The method of claim 1, wherein the nitride-based film is grown on a substrate comprising at least one of: lithium aluminate and silicon.

9. (Original) The method of claim 1, wherein the first precursor flux further comprises a plurality of subsequent pulses, wherein each subsequent pulse has the first duration, and wherein each subsequent pulse is separated from a previous pulse by a gap having the first duration.

10. (Original) A method of growing a nitride-based film, the method comprising:

applying a first precursor flux for a first element using a first series of pulses, wherein the first element comprises nitrogen; and

applying a second precursor flux for a second element using a second series of pulses, wherein at least a portion of a pulse in the second series of pulses is applied during at least a portion of a pulse in the first series of pulses.

11. (Original) The method of claim 10, further comprising applying a third precursor flux for a third element using a third series of pulses, wherein at least a portion of a pulse in the third series of pulses is applied during at least a portion of a pulse in the first series of pulses.

12. (Original) The method of claim 11, further comprising applying a fourth precursor flux for a fourth element using a fourth series of pulses, wherein at least a portion of a pulse in the fourth series of pulses is applied during at least a portion of a pulse in the first series of pulses.

13. (Original) The method of claim 10, further comprising illuminating the nitride-based film with ultraviolet radiation.

14. (Original) The method of claim 10, wherein a duration of a pulse in the second series of pulses is not equal to a duration of any pulse in the first series of pulses.

15. (Original) The method of claim 10, wherein a pulse in the second series of pulses has a non-rectangular waveform.

16. (Original) A method of growing a nitride-based film, the method comprising:
applying a nitrogen precursor flux comprising NH_3 using a first series of pulses; and
applying a second precursor flux for a second element using a second series of pulses,
wherein a pulse in the second series of pulses has a non-rectangular waveform.

17. (Original) The method of claim 16, wherein at least a portion of a pulse in the second series of pulses is applied during at least a portion of a pulse in the first series of pulses.

18. (Original) The method of claim 16, wherein each pulse in the first series of pulses has a non-rectangular waveform.

19. (Original) The method of claim 16, wherein a duration of a pulse in the second series of pulses is not equal to a duration of any pulse in the first series of pulses.

20. (Original) The method of claim 16, further comprising illuminating the nitride-based film with ultraviolet radiation.